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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/025,601	12/18/2001	Anthony M. Chiu	01-C-110	7934
30426	7590	12/15/2004	EXAMINER	
STMICROELECTRONICS, INC.			CHU, KIM KWOK	
MAIL STATION 2346			ART UNIT	
1310 ELECTRONICS DRIVE			PAPER NUMBER	
CARROLLTON, TX 75006			2653	

DATE MAILED: 12/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/025,601

Applicant(s)

CHIU ET AL.

Examiner

Kim-Kwok CHU

Art Unit

2653

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Response to Restriction filed 10/19/04.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 12-18 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-11 is/are allowed.
- 6) ☒ Claim(s) 19 and 20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 11/24/03&3/29/02.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Response to Restriction Requirement

1. In the Response filed on October 19, 2004, Applicant elects the Group I invention to which Claims 1-11, 19 and 20 are drawn. This election is made without traverse.

Claims 12-18 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on October 19, 2004.

Claim Objections

2. Claims 8 and 20 are objected to because of the following informalities:

(a) in claim 8, line 2, the term "at at least one photodetector" should be changed to --to at least one photodetector--; and

(b) in claim 20, line 1, the term "intedigitated optical unit" should be changed to --integrated optical unit--.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 19 and 20 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Asoma et al. (U.S. Patent 6,529,454) in view of Fujii (U.S. Patent 5,583,704).

Asoma teaches an optical unit for use with an optical disc very similar to that of the present invention. For example, Asoma teaches the following:

(a) as in claim 19, a laser diode 31 for generating a laser light beam (Fig. 8);

(b) as in claim 19, a photodetector 62 for detecting laser light returning from the optical disc 11 (Figs. 3 and 7);

(c) as in claim 19, an optical unit 70 having an elongated glass element for carrying light beams along its length (Fig. 7);

(d) as in claim 19, the elongated glass element having angled surfaces with mirrors 76, 77, 78 formed on there (Fig. 7);

(e) as in claim 19, the mirrors 76, 77, 78 being positioned to direct a laser light beam from the laser diode 31 along a first path through the elongated glass element and out at an optical disc 11 (Figs. 3 and 7);

(f) as in claim 19, the mirrors 76, 77, 78 reflecting a light beam returning from the optical disc 11 along a second path through the elongated glass element 70 parallel and adjacent to the first path for detection by the photodetector 62 (Fig. 7; reflected light beams L3-L5 are parallel and adjacent to L1 in the elongated glass element 70 and 61); and

(g) as in claim 20, the elongated glass element 70 includes a first lens 64 for directing the laser light beam out from the unit at the optical disc 11, and a second lens 65 disposed adjacent to the first lens 64 for receiving the returning light beam reflected from the optical disc 11 (Fig. 7).

However, Asoma does not teach the following:

(a) as in claim 19, at least one of the minors comprises an oxide, nitride, sulfide, or fluoride of a transition metal.

Fujii teaches a reflective mirror having a layer 3a made of oxide, nitride, sulfide or fluoride of a transition metal

Fujii teaches a reflective mirror having a layer 3a made of oxide, nitride, sulfide or fluoride of a transition metal (Figs. 1 and 4; layer 3a is chromium sulfide; layer 26 is titanium oxide).

A reflective mirror in an integrated pickup should resist environmental corrosion so that its reflective surface has no defect. Hence, it would have been obvious to one of ordinary skill in the art to use a chromium sulfide or titanium oxide coating layer such as Fujii's as a protective layer in Asoma's mirror means, because the chromium sulfide/titanium oxide layer not only has a high refractive index but it also maintains a smooth surface under high temperature.

Allowable Subject Matter

5. Claims 1-11 are allowable over prior art.

6. The following is an Examiner's statement of reasons for the indication of allowable subject matter:

As in claim 1, the prior art of record fails to teach or fairly suggest an electro-optical device having the following features:

(a) the electro-optical device comprising a semiconductor chip having analog-to-digital conversion circuitry and logic circuitry;

(b) first and second photodetectors on the semiconductor chip in electrical communication with the analog-to-digital conversion circuitry;

(c) a laser diode supported by the semiconductor chip oriented to emit a laser beam in a first direction;

(d) an optical unit supported above the semiconductor chip, the optical unit having a first mirror aligned to reflect the laser beam from the first direction to a second direction;

(e) a first lens for directing the laser beam outward to strike the surface of an optical disc;

(f) a glass members for directing the laser beam from the second direction to the first lens;

(g) a second lens for receiving an information-containing beam from the optical disc;

(h) a second mirror for splitting the information-containing beam into first and second component beams; and

(i) a third mirror for directing the first component beam at the first photodetector, the second component beam passing through the second mirror in a direction at the second photodetector.

As in claim 8, the prior art of record fails to teach or fairly suggest an optical unit having the following features:

(a) a base element 37 including a first mirror for reflecting light from a first direction from the laser to a second direction;

(b) a lens element including second and third minor;

(c) the second minor being positioned relative to the base element to reflect laser light from the second direction to a third direction;

(d) the third minor being positioned relative to the second mirror to reflect laser light from the third direction to a fourth direction;

(e) the lens element further including first and second lenses;

(f) the first lens being disposed to direct laser light from the fourth direction at the optical disc;

(g) the second lens being disposed to receive light reflected from the optical disc and direct it at the third mirror; and

(h) the third mirror being partially reflective to permit light to pass through at a first photodetector.

The features indicated above, in combination with the other elements of the claims, are not anticipated by, nor made obvious over, the prior art of record.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Niss (6,717,893) is pertinent because Niss teaches an optical pickup unit having mirrors and light members.

Broome (6,496,465) is pertinent because Broome teaches an optical pickup unit having mirrors and light members.

Demiryont (6,416,194) is pertinent because Demiryont teaches a mirror having a copper oxide layer.

Manabe et al. (5,783,818) is pertinent because Manabe teaches an optical pickup unit having mirrors and light members.

Ando (5,684,780) is pertinent because Ando teaches an optical pickup unit having mirrors and light members.

8. Any response to this action should be mailed to:
Commissioner of Patents and Trademarks Washington, D.C. 20231
Or faxed to:

(703) 872-9306 (for formal communications intended for
entry. Or:

(703) 746-6909, (for informal or draft communications,
please label "PROPOSED" or "DRAFT")

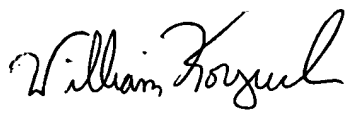
Hand-delivered responses should be brought to Crystal Park
II, 2021 Crystal Drive, Arlington. VA., Sixth Floor
(Receptionist).

Any inquiry of a general nature or relating to the status
of this application should be directed to the Group
receptionist whose telephone number is (703) 305-4700.

Any inquiry concerning this communication or earlier
communications from the examiner should be directed to Kim CHU
whose telephone number is (703) 305-3032 between 9:30 am to
6:00 pm, Monday to Friday.

KE 12/1/04
Kim-Kwok CHU
Examiner AU2653
December 1, 2004

(703) 305-3032


WILLIAM KORZUCH
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